

Intelligent Valve

BACnet Objects



Control valve with integrated energy data acquisition for ventilation and air conditioning plants as well as precontrol groups. Sensor-guided dynamic flow control.

Intelligent Valve product types:

- ASE4U10E
- EVG4U10E015; EVG4U10E020; EVG4U10E025; EVG4U10E032; EVG4U10E040; EVG4U10E050
- EXG4U10E015; EXG4U10E020; EXG4U10E025; EXG4U10E032; EXG4U10E040; EXG4U10E050
- EVF4U20E065; EVF4U20E080; EVF4U20E100; EVF4U20E125
- EXF4U20E065; EXF4U20E080; EXF4U20E100

This Object List is valid for the following product version:

- Model info: ASE4U10E; HW=2.1.0
- Firmware revision: 03.54.02.10; APP=1.16.2251; SVS300.6.SBC=15.00; ISC=1.00
- Application software version: AAS-20:SU=SiUn; APT=HvacFnct34 ; APTV=2.010; APS=1

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General Information

Date	2020-06-19
Vendor name	Siemens Smart Infrastructure
Vendor ID	7
Product name	Intelligent Valve
Product model number	ASE4U10 used in <ul style="list-style-type: none"> • EVG4U10E.. (e.g. EVG4U10E020) • EXG4U10E.. (e.g. EXG4U10E032) • EVF4U20E.. (e.g. EVF4U20E065) • EXF4U20E.. (e.g. EVF4U20E100)
BACnet protocol version	1
BACnet protocol revision	15
BACnet device profile	B-ASC (BACnet Application Specific Controller)
Firmware revision	03.54.02.10; APP=1.16.2251; SVS300.6.SBC=15.00; ISC=01.00
BACnet application software version	AAS-20:SU=SiUn; APT=HvacFnct34; APTV=2.010; APS=1
BACnet interoperability	Data Sharing-ReadProperty-B Data Sharing-ReadPropertyMultiple-B Data Sharing-WriteProperty-B Data Sharing-WritePropertyMultiple-B Data Sharing-Change Of Value-B Device Management-Dynamic Device Binding-B Device Management-Dynamic Object Binding-B Device Management-DeviceCommunicationControl-B Device Management-TimeSynchronization-B Device Management-UTCTimeSynchronization-B Device Management-ReinitializeDevice-B Device Management-Restart-B Scheduling – Weekly Schedule Internal-B
Data Link Layer Options	BACnet/IP – Annex J – non-BBMD Funcionality

Used Object Types

Object type		Optional properties	Writable properties
AI	Analog Input	Description COV Increment	COV Increment
AO	Analog Output	Description COV Increment	Present Value Relinquish Default COV Increment
AV	Analog Value	Description	Present Value
BI	Binary Input	Description Active Text Inactive Text	-
BV	Binary Value	Description Active Text Inactive Text	Present Value
Device	Device	Description	Object Identifier Object Name Location Description
MSV	Multi-State Value	Description State Text	Present Value
PIV	Positive Integer Value		-



The current application on the device does not support those options for multi-state objects which are *italicized* (e.g. [5] *Ni1000 (DIN)*). These options will become active with future versions of the application.

Object List Structure


The object list is clustered according to use cases – the chapter Proposed Objects for Integration into an Automation Station as dynamic control valve [→ 5] comprises a selection of the objects considered essential in the case the Intelligent Valve is integrated via BACnet for control operation and monitoring. The two sub-chapters contain a selection of objects from the other chapters.

The other chapters are equivalent to the structure used in the configuration and commissioning tool ABT Go, following the major workflow phases: Operation [→ 9] – Commissioning [→ 17] – Configuration [→ 26].

Proposed Objects for Integration into an Automation Station as Dynamic Control Valve

Control

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
SpRel %Plt%'HVAC'VlvCtl'SpRel	AV16	Relative setpoint Setpoint to the device – the base for the calculation of the absolute setpoint PrSpVfl or PrSpPwr , depending on the operation mode selected.	Y	[%]	0	100	0	N
PrSpSrc %Plt%'HVAC'PrSpSrc	MSV54	Present setpoint source Shows the configured application and setpoint source. Currently selection between: <ul style="list-style-type: none"> [1]: Dynamic balancing valve with continuous analog signal on terminal X1; [3]: Dynamic balancing valve with setpoint via BACnet IP (SpRel); [4]: Heating circuit control with local setpoint according to heating curve based on measured outside temperature; [5]: Supply temperature control with setpoint according to analog signal on terminal X1; [7]: Supply temperature control with setpoint via BACnet IP; [8]: Differential pressure control with setpoint via BACnet IP. 	N	-	[1] Relative setpoint terminal [2] <i>Relative setpoint Modbus</i> [3] Relative setpoint remote [4] Heat circuit outside temp. comp. [5] Flow temp. setpoint terminal [6] <i>Flow temp. setpoint Modbus</i> [7] Flow temp. setpoint remote [8] Diff.pressure setpoint remote	[1] Relative setpoint terminal	N	
CtlSta %Plt%'HVAC'VlvCtl'CtlSta	MSV40 MSV63 (Dp Control)	Control state Based on selection for CtlMod , the failure state of the sensors and, provided limitations are active, the respective operation mode are determined – e.g. whether the valve switches from output control to volume flow if a temperature sensor fails.	N	-	[1] Position [2] Volume flow [3] Power [4] Maximum power limit [5] Minimum volume flow limit [6] Maximum volume flow limit [7] Min.return temp.limitation [8] Max.return temp.limitation [9] Flow/return temp.diff.limitation	-	Y	


Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
HCSta %Pit%'HVAC'VlvCtl'HCSta	MSV53	Heating/cooling state  Value calculated by the application!	N	-	[1] Neither [2] Heating [3] Cooling		-	Y
	MSV64 (Dp Control)	Based on the temperatures on B26 and B7, the valve decides if it is cooling (B26 < B7) or heating (B26 > B7). ⇒ Writing in the respective flow and energy accumulator objects.						
PrSpVfl %Pit%'HVAC'VlvCtl'PrSpVfl	AV37	Present setpoint volume flow	N	[m ³ /h]	0	1000	-	Y
	AV69 (Dp Control)	Present volume flow setpoint in volume flow control, either calculated from SpRel * VflMax , or resulting from an additional limitation.						


Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
PrVfl %Plt%'HVAC'VlvCtl'PrVfl	AV39 AV70 (Dp Control)	Present volume flow Value measured by the flow sensor.	N	[m³/h]	0	1000	-	Y
PrSpPwr %Plt%'HVAC'VlvCtl'PrSpPwr	AV38	Present setpoint power Present output setpoint in output control, either calculated from SpRel * PwrMax , or resulting from an additional limitation.	N	[kW]	0	10'000	-	Y
PrPwr %Plt%'HVAC'VlvCtl'PrPwr	AV40 AV71 (Dp Control)	Present power Output calculated as a product of PrVfl , TRtPrim and TFIPrim .	N	[kW]	0	10'000	-	Y
TRtPrim %Plt%'TRtPrim	AI2	Primary return temperature Present value of local connected temperature sensor at B26.	N	[°C]	-10	150	-	N
TFIPrim %Plt%'TFIPrim	AI3	Primary flow temperature Present value of local connected temperature sensor at B7.	N	[°C]	-10	150	-	N
VlvPosFb %Plt%'VlvPosFb	AI1	Valve position feedback Present control valve position based on the feedback signal on terminal U.	N	[%]	0	100	0	Y
MnFlt %Plt%'HVAC'AlmBd'MnFlt	MSV57	Main fault Shows the main fault of the device	N	-	[1] No fault [2] Prim. flow temp., sensor fault [3] Prim. return temp., sensor fault [4] Flow temp., sensor fault [5] Return temp., sensor fault [6] Vol. flow, sensor fault [7] Valve actuator fault [8] Valve actuator, pos. feedb. fault [9] Valve actuator, no pos. feedb. [10] Relative setpoint, fault [11] Flow temp., setpoint fault [12] Diff. press. primary, sensor fault [13] Vol. flow, wrong flow direction [14] Vol. flow, air bubbles [15] Vol. flow, cannot reach max. value [16] Valve diff. press. above max. value [17] Vol. flow sensor, comm. error [18] Outside air temp., sensor fault [19] Vol. flow, cannot reach setpoint		-	Y

Monitoring

Object name	Obj. type/ID	Description	Write	Unit			Default	Available in cloud
					Value min.	Value max.		
OphDev %Plt%'HVAC'OphDev	AV47	Operating hours device Accumulated operating hours of the device	N	[h]	0	999'999	0	N
TotHVfl %Plt%'HVAC'TotHVfl	AV48	Total heating volume flow Accumulated volume flow of the device in heating operation (TRtPrim < TFIPrim)	N	[m ³]	0	20'000'000	0	Y
TotCVfl %Plt%'HVAC'TotCVfl	AV49	Total cooling volume flow Accumulated volume flow of the device in cooling operation (TRtPrim > TFIPrim)	N	[m ³]	0	20'000'000	0	Y
TotHEngy %Plt%'HVAC'TotHEngy	AV50	Total heating energy Accumulated energy of the device in heating operation (TRtPrim < TFIPrim)	N	[kWh]	0	2'000'000'000	0	Y
TotCEngy %Plt%'HVAC'TotCEngy	AV51	Total cooling energy Accumulated energy of the device in cooling operation (TRtPrim > TFIPrim)	N	[kWh]	0	2'000'000'000	0	Y

Present Values

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
HCSta %Pit%'HVAC'VlvCtl'HCSta	MSV53	Heating/cooling state  Value calculated by the application!	N	-	[1] Neither [2] Heating [3] Cooling		-	Y
	MSV64 (Dp Control)	Based on the temperatures on B26 and B7, the valve decides if it is cooling (B26 < B7) or heating (B26 > B7). ⇒ Writing in the respective flow and energy accumulator objects.						
CtlSta %Pit%'HVAC'VlvCtl'CtlSta	MSV40	Control state Based on selection for CtiMod , the failure state of the sensors and, provided limitations are active, the respective operation mode are determined – e.g. whether the valve switches from output control to volume flow if a temperature sensor fails.	N	-	[1] Position [2] Volume flow [3] Power [4] Maximum power limit [5] Minimum volume flow limit [6] Maximum volume flow limit [7] Min.return temp.limitation [8] Max.return temp.limitation [9] Flow/return temp.diff.limitation		-	N
	MSV63 (Dp Control)							
PrSpSrc %Pit%'HVAC'PrSpSrc	MSV54	Present setpoint source Shows the configured application and setpoint source. Currently selection between: <ul style="list-style-type: none"> [1]: Dynamic balancing valve with continuous analog signal on terminal X1; [3]: Dynamic balancing valve with setpoint via BACnet IP (SpRel); [4]: Heating circuit control with local setpoint according to heating curve based on measured outside temperature; [5]: Supply temperature control with setpoint according to analog signal on terminal X1; [7]: Supply temperature control with setpoint via BACnet IP; [8]: Differential pressure control with setpoint via BACnet IP. 	N	-	[1] Relative setpoint terminal [2] <i>Relative setpoint Modbus</i> [3] Relative setpoint remote [4] Heat circuit outside temp. comp. [5] Flow temp. setpoint terminal [6] <i>Flow temp. setpoint Modbus</i> [7] Flow temp. setpoint remote [8] Diff.pressure setpoint remote		[1] Relative setpoint terminal	N
SpRel %Pit%'HVAC'VlvCtl'SpRel	AV16	Relative setpoint Setpoint to the device – the base for the calculation of the absolute setpoint PrSpVfl or PrSpPwr , depending on the operation mode selected.	Y	[%]	0	100	0	N

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
VflMax %Plt%'HVAC'VlvCtl'VflMax	AV22 AV67 (Dp Control)	Maximum volume flow Absolute limitation setpoint for the maximum volume flow –value range depends on valve line size.	Y	[m ³ /h]	...	...	...	Y
PrSpVfl %Plt%'HVAC'VlvCtl'PrSpVfl	AV37 AV69 (Dp Control)	Present setpoint volume flow Present volume flow setpoint in volume flow control, either calculated from SpRel * VflMax , or resulting from an additional limitation.	N	[m ³ /h]	0	1000	-	Y
PrVfl %Plt%'HVAC'VlvCtl'PrVfl	AV39 AV70 (Dp Control)	Present volume flow Value measured by the flow sensor.	N	[m ³ /h]	0	1000	-	Y
PwrDsgn %Plt%'HVAC'VlvCtl'PwrDsgn	AV26	Design power Calculated design output = valve fully open at maximum flow and design temperatures reached (product of VflMax , TFIPrimDsgn and TRtPrimDsgn).	N	[kW]	0	10'000	-	Y
PrSpPwr %Plt%'HVAC'VlvCtl'PrSpPwr	AV38	Present setpoint power Present output setpoint in output control, either calculated from SpRel * PwrMax , or resulting from an additional limitation.	N	[kW]	0	10'000	-	Y
PrPwr %Plt%'HVAC'VlvCtl'PrPwr	AV40 AV71 (Dp Control)	Present power Output calculated as a product of PrVfl , TRtPrim and TFIPrim .	N	[kW]	0	10'000	-	Y
PrDiffPVlv %Plt%'HVAC'VlvCtl'PrDiffPVlv	AV41 AV66 (Dp Control)	Present differential pressure of valve Value calculated from present volume flow and present position (= kv value).  Just a calculation, not a measurement!	N	[kPa]	0	550	-	N
VlvPosFb %Plt%'VlvPosFb	AI1	Valve position feedback Present control valve position based on the feedback signal on terminal U.	N	[%]	0	100	0	Y
TRtPrim %Plt%'TRtPrim	AI2	Primary return temperature Present value of local connected temperature sensor at B26.	N	[°C]	-10	150	-	Y
TFIPrim %Plt%'TFIPrim	AI3	Primary flow temperature Present value of local connected temperature sensor at B7.	N	[°C]	-10	150	-	Y

Counters (Diagnostics)

Object name	Obj. type/ID	Description	Write	Unit	Value range		Default	Available in cloud
					Value min.	Value max.		
OphDev %Plt%'HVAC'OphDev	AV47	Operating hours device Accumulated operating hours of the device	N	[h]	0	999'999	0	N
TotHVfl %Plt%'HVAC'TotHVfl	AV48	Total heating volume flow Accumulated volume flow of the device in heating operation (TRtPrim < TFIPrim)	N	[m ³]	0	20'000'000	0	Y
TotCVfl %Plt%'HVAC'TotCVfl	AV49	Total cooling volume flow Accumulated volume flow of the device in cooling operation (TRtPrim > TFIPrim)	N	[m ³]	0	20'000'000	0	Y
TotHEngy %Plt%'HVAC'TotHEngy	AV50	Total heating energy Accumulated energy of the device in heating operation (TRtPrim < TFIPrim)	N	[kWh]	0	2'000'000'000	0	Y
TotCEngy %Plt%'HVAC'TotCEngy	AV51	Total cooling energy Accumulated energy of the device in cooling operation (TRtPrim > TFIPrim)	N	[kWh]	0	2'000'000'000	0	Y

Alarms



Intelligent Valve does not provide BACnet alarming. However, a few binary values are available, each representing an individual alarm, as well as the multi-state value **MnFit**, representing the highest ranked current fault, including state text.

Object name	Obj. type/ID	Description	Write	Unit	Options	Default	Available in cloud
MnFit %Pit%'HVAC'AlmBdl'MnFit	MSV57	Main fault Shows the main fault of the device	N	-	[1] No fault [2] Prim. flow temp., sensor fault [3] Prim. return temp., sensor fault [4] Flow temp., sensor fault [5] Return temp., sensor fault [6] Vol. flow, sensor fault [7] Valve actuator fault [8] Valve actuator, pos. feedb. fault [9] Valve actuator, no pos. feedb. [10] Relative setpoint, fault [11] Flow temp., setpoint fault [12] Diff. press. primary, sensor fault [13] Vol. flow, wrong flow direction [14] Vol. flow, air bubbles [15] Vol. flow, cannot reach max. value [16] Valve diff. press. above max. value [17] Vol. flow sensor, comm. error [18] Outside air temp., sensor fault [19] Vol. flow, cannot reach setpoint	-	Y
Alm1004 %Pit%'HVAC'AlmBdl'Alm1004	BV6	Outside air temperature, sensor fault	N	-	[1] Active [2] Inactive	-	N
Alm1050 %Pit%'HVAC'AlmBdl'Alm1050	BV7	Primary flow temperature, sensor fault	N	-	[1] Active [2] Inactive	-	N
Alm1051 %Pit%'HVAC'AlmBdl'Alm1051	BV8	Primary return temperature, sensor fault	N	-	[1] Active [2] Inactive	-	N
Alm1052 %Pit%'HVAC'AlmBdl'Alm1052	BV9	Flow temperature, sensor fault	N	-	[1] Active [2] Inactive	-	N
Alm1054 %Pit%'HVAC'AlmBdl'Alm1054	BV10	Volume flow, sensor fault	N	-	[1] Active [2] Inactive	-	N

Object name	Obj. type/ID	Description	Write	Unit	Options	Default	Available in cloud
Alm1055 %Pit%'HVAC'AlmBdl'Alm1055	BV11	Valve actuator fault	N	-	[1] Active [2] Inactive	-	N
Alm1056 %Pit%'HVAC'AlmBdl'Alm1056	BV12	Valve actuator, position feedback fault	N	-	[1] Active [2] Inactive	-	N
Alm1057 %Pit%'HVAC'AlmBdl'Alm1057	BV13	Valve actuator, no position feedback	N	-	[1] Active [2] Inactive	-	N
Alm1058 %Pit%'HVAC'AlmBdl'Alm1058	BV14	Relative setpoint, fault	N	-	[1] Active [2] Inactive	-	N
Alm1059 %Pit%'HVAC'AlmBdl'Alm1059	BV15	Flow temperature, setpoint fault	N	-	[1] Active [2] Inactive	-	N
Alm1060 %Pit%'HVAC'AlmBdl'Alm1060	BV16	Diff.pressure primary, sensor fault	N	-	[1] Active [2] Inactive	-	N
Alm2050 %Pit%'HVAC'AlmBdl'Alm2050	BV17	Volume flow, wrong flow direction	N	-	[1] Active [2] Inactive	-	N
Alm2051 %Pit%'HVAC'AlmBdl'Alm2051	BV18	Volume flow, air bubbles in hydraulics	N	-	[1] Active [2] Inactive	-	N
Alm2052 %Pit%'HVAC'AlmBdl'Alm2052	BV19	Volume flow, cannot reach maximum value	N	-	[1] Active [2] Inactive	-	N
Alm2053 %Pit%'HVAC'AlmBdl'Alm2053	BV20	Valve differential pressure above max. value	N	-	[1] Active [2] Inactive	-	N
Alm2054 %Pit%'HVAC'AlmBdl'Alm2054	BV23	Volume flow, cannot reach setpoint	N	-	[1] Active [2] Inactive	-	N
Alm3050 %Pit%'HVAC'AlmBdl'Alm3050	BV21	Volume flow sensor, communication error	N	-	[1] Active [2] Inactive	-	N

Heating circuit



For applications

- Dynamic control valve
- Differential pressure control

Heating Circuit is empty!

Objects are only activated when applications **Flow temp. setpoint / Heating Circuit** are selected.

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
SpTFI %Plt%HVAC'Hcr'SpTFI	AV14	Flow temperature setpoint	Y	[°C]	0	120	-	N
	AV6 (Heating Circuit)	Setpoint for supply temperature control loop						
TFI %Plt%TFI	AI18	Flow temperature	N	[°C]	-10	150	-	N
	AI19	Shows the present secondary flow temperature (sensor connected to X3)						
	AI20							
EnKick %Plt%HVAC'Hcr'EnKick	BV2	Enable kick Defines whether the secondary pump connected to Q1 should receive a pimp kick during down times or not	Y	-	[1] No [2] Yes		Yes	N
GainHcrTFIVlvc %Plt%HVAC'Hcr'GainHcrTFIVlvc	AV81	Gain flow temp.ctr.valve pos.heat.circ.	Y	[K]	0	50	10	N
	AV82	Defines the gain for the supply temperature control loop						
TnHcrTFIVlvcCtr %Plt%HVAC'Hcr'TnHcrTFIVlvcCtr	PIV8	Tn flow temp.ctr.valve pos.for heat.circ. Reset time (" <i>Nachstellzeit</i> ")	Y	[s]	0	600	60	N
The following objects are only available in application Heating Circuit :								
TOa %Plt%HVAC'Hcr'TOa	AI12	Outside air temperature	N	[°C]	-50	50	-	N
	AI13	Shows the present value of the outside temperature measured by the sensor connected to X1						
	AI14							
PrROpMod %Plt%HVAC'Hcr'PrROpMod	MSV80	Present room operation mode Shows the current room operation mode	N	-	[1] Comfort [2] Pre-Comfort [3] Economy [4] Protection		-	N
RsnPrOpMod %Plt%HVAC'Hcr'RsnPrOpMod	MSV79	Reason for present room operation mode Shows whether the scheduler or a manual overwrite command defines the current room operation mode	N	-	[1] Scheduler [2] Manual overwrite		-	N
SpTFIMaxHcr %Plt%HVAC'Hcr'SpTFIMaxHcr	AV13	Max.flow temp.setpoint for heat.circ. Defines the maximum flow temperature for the heating circuit – ensures that the system does not overheat under rare, exceptionally low outside temperatures	Y	[°C]	0	90	60	N

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
SpTFIMinHcr %Plt%HVAC'Hcr'SpTFIMinHcr	AV12	Min.flow temp.setpoint for heat.circ. Defines the minimum flow temperature for the heating circuit – ensures that the system switches off under high outside temperatures	Y	[°C]	0	90	10	N
ToaDsgn %Plt%HVAC'Hcr'ToaDsgn	AV11	Design outside temperature Minimum design outside temperature for the heating curve setpoint SpTFIDs	Y	[°C]	-40	20	-10	N
ToaHi %Plt%HVAC'Hcr'ToaHi	AV10	Outside temperature high Maximum design outside temperature for the heating curve SpTFIHi	Y	[°C]	-40	20	15	N
SpTFIDs %Plt%HVAC'Hcr'SpTFIDs	AV9	Flow temp.setp for design outside temp. Flow temperature setpoint at the design outside temperature	Y	[°C]	0	90	60	N
SpTFIHi %Plt%HVAC'Hcr'SpTFIHi	AV8	Flow temp.setp for high outside temp. Flow temperature setpoint at the high outside temperature	Y	[°C]	0	90	30	N
ExpRad %Plt%HVAC'Hcr'ExpRad	AV88	Radiator exponent Exponent which considers the non-linear heat transmission of the room heating system – values: <ul style="list-style-type: none"> Underfloor system 1.05 Radiator 1.3 	Y	-	1	2	1.3	N
TcnBldg %Plt%HVAC'Hcr'TcnBldg	PIV7	Time constant of building Describes how fast the room temperature reaches outside temperature after switching off the heating system	Y	[h]	0	100	10	N
HtgLm %Plt%HVAC'Hcr'HtgLm	AV89	Heating limit Describes the outside temperature when heating is switched off in Comfort and Pre-Comfort room operation mode	Y	[°C]	-5	25	17	N
HtgLmEco %Plt%HVAC'Hcr'HtgLmEco	AV90	Heating limit for Economy Describes the outside temperature when heating is switched off in Economy and Protection room operation mode	Y	[°C]	-5	25	5	N
EnPltFrPrt %Plt%HVAC'Hcr'EnPltFrPrt	BV25	Enable plant frost protection	Y	-	[1] No [2] Yes		-	N

Room Heating



For applications

- Dynamic control valve
- Supply temperature control
- Differential pressure control

Room Heating is empty!



Objects are only activated when application **Heating Circuit** is selected.

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
RopModSched %Plt%HVAC'Hcr'RopModSched	Schedule1	Room operation mode scheduler Opens the weekly scheduler for the heating circuit	N	-	Opens scheduler		-	N
RopMod %Plt%HVAC'Hcr'RopMod	MSV55	Room operation mode Shows the room operation mode and allows to switch it manually. A manual switch will last until the next power dip or a deactivation of the manual overwrite.	Y	-	[1] Comfort [2] Pre-Comfort [3] Economy [4] Protection		-	N
SpHCmf %Plt%HVAC'Hcr'SpHCmf	AV2	Heating setpoint for Comfort Room temperature setpoint for room operation mode Comfort	Y	[°C]	6	36	21	N
SpHPcf %Plt%HVAC'Hcr'SpHPcf	AV3	Heating setpoint for Pre-Comfort Room temperature setpoint for room operation mode Pre-Comfort	Y	[°C]	6	36	19	N
SpHEco %Plt%HVAC'Hcr'SpHEco	AV4	Heating setpoint for Economy Room temperature setpoint for room operation mode Economy	Y	[°C]	6	36	16	N
SpHPrt %Plt%HVAC'Hcr'SpHPrt	AV5	Heating setpoint for Protection Room temperature setpoint for room operation mode Protection	N	[°C]	6	36	10	N
SbstTR %Plt%HVAC'Hcr'SbstTR	AV87	Substitute room temperature	Y	[°C]	-30	50	-	N
EnQckSetbck %Plt%HVAC'Hcr'EnQckSetbck	BV22	Enable quick setback / Freigabe Schnellabsenkung	Y	-	[1] No [2] Yes		-	N
EnOscFncf %Plt%HVAC'Hcr'EnOscFncf	BV27	Enable optimum start control	Y	-	[1] No [2] Yes		-	N
SpTRShftBstH %Plt%HVAC'Hcr'SpTRShftBstH	AV97	Room temperature setpoint shift for boost heating	Y	[°C]	0	20	5	N
WarmUpGrdnt %Plt%HVAC'Hcr'WarmUpGrdnt	AV96	Warm-up gradient	Y	[K/h]	0.1	10	1	N

Settings for Hydraulic Balancing

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
SfTst %Pit%'HVAC'VlvCtl'SfTst	MSV45 MSV65 (Dp control)	Self-test Starts or stops the self-test sequence, which checks the flow sensor, goes to maximum volume flow VfIMax , to nominal flow VfINom and finally to closed position to check operation.	Y	-	[1] Ready [2] Start [3] Stop		-	N
FrcVfIMax %Pit%'HVAC'VlvCtl'FrcVfIMax	MSV58 MSV75 (Dp control)	Force maximum volume flow Forces the valve to maximum volume flow VfIMax for 10 minutes.	Y	-	[1] Ready [2] Start [3] Stop		-	N
VfINomVlv %Pit%'HVAC'VlvCtl'VfINomVlv	AV18 AV63 (Dp control)	Nominal volume flow for valve Nominal volume flow of the installed Intelligent Valve.	N	[m ³ /h]	0	1000	-	N
VfIMax %Pit%'HVAC'VlvCtl'VfIMax	AV22 AV67 (Dp control)	Maximum volume flow Absolute limitation setpoint for the maximum volume flow – value range depends on valve line size.	Y	[m ³ /h]	...	...	VfINomVlv	Y
VfIMaxRel %Pit%'HVAC'VlvCtl'VfIMaxRel	AV23 AV68 (Dp control)	Relative maximum volume flow (not available for application differential pressure control) Relative limitation setpoint for the maximum volume flow – sets the maximum volume flow setpoint relative to VfINomVlv .	Y	[%]	30	100	100%	N
EnVfIMin %Pit%'HVAC'VlvCtl'EnVfIMin	BV4	Enable minimum volume flow (not available for application differential pressure control) Switches the minimum volume flow limitation function (VfIMin/VfIMinRel) on and off: <ul style="list-style-type: none"> • [1] No: switched off; • [2] Yes: switched on. 	Y		[1] No [2] Yes		[1] No	Y
VfIMin %Pit%'HVAC'VlvCtl'VfIMin	AV24	Minimum volume flow (not available for application differential pressure control) Limitation setpoint for the minimum volume flow – depends on valve line size.	Y	[m ³ /h]	...	...	2.5% of VfINomVlv	Y
VfIMinRel %Pit%'HVAC'VlvCtl'VfIMinRel	AV25	Relative minimum volume flow (not available for application differential pressure control) Limitation setpoint for the minimum volume flow – depends on valve line size.	Y	[%]	2.5	20	2.5%	N

Control Settings for Control Behavior (“Valve”)

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
VlvDsgn	MSV24	Valve design Define whether a 2-port or 3-port valve is installed				[1] 2-port [2] 3-port	[1] 2-port	N
VlvTyp %Pit%'HVAC'VlvCtl'VlvTyp	MSV38 MSV62 (Dp control)	Valve type Shows the type of the installed Intelligent Valve  Object is written by the application. If no flow sensor is connected: [1] EVG4U10E015	N	-		[1] EVG4U10E015 [2] EVG4U10E020 [3] EVG4U10E025 [4] EVG4U10E032 [5] EVG4U10E040 [6] EVG4U10E050 [7] EVF4U20E065 [8] EVF4U20E080 [9] EVF4U20E100 [10] EVF4U20E125 [12] EXG4U10E015 [13] EXG4U10E020 [14] EXG4U10E025 [15] EXG4U10E032 [16] EXG4U10E040 [17] EXG4U10E050 [18] EXF4U20E065 [19] EXF4U20E080 [20] EXF4U20E100	-	N
NomPipeSize %Pit%'HVAC'VlvCtl'NomPipeSize	AV17	Nominal pipe size Line size of the installed Intelligent Valve  Object is written by the application.	Y	[mm]	0	500	-	N
VlvMountPos %Pit%'HVAC'VlvCtl'VlvMountPos	BV3	Valve mounting position States whether the valve is installed in flow or return – currently, the application does not require this information.	N	-		[1] Flow [2] Return	[2] Return	N

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
CtlMod %Pit%'HVAC'VlvCtl'CtlMod	MSV39	<p>Control mode (only relevant for application dynamic control valve)</p> <p>Define the operation:</p> <ul style="list-style-type: none"> [1] Position mode = kvs value [2] Volume flow control = ePICV [3] Output control = energy valve <p>In all operation modes, the maximum flow limitation is active, and the output measuring and energy accumulation is also active.</p>	Y	-	[1] Position [2] Volume flow [3] Power	[2] Volume flow	Y	
CmpMod %Pit%'HVAC'VlvCtl'CmpMod	MSV41	<p>Compensation mode (only relevant for application dynamic control valve)</p> <p>Define the volume flow characteristic ($X1/Vf$) in volume flow control. The valve operates either</p> <ul style="list-style-type: none"> [1] as a linear; <div data-bbox="1055 611 1323 810" data-label="Figure"> </div> [2] equal percentage valve; or <div data-bbox="1055 823 1323 1023" data-label="Figure"> </div> [3] compensates a dedicated heat exchanger characteristic. <div data-bbox="1055 1035 1323 1251" data-label="Figure"> </div> 	Y	-	[1] Volume flow linear [2] Volume flow exponential [3] Heat exchanger characteristic	[2] Volume flow linear	N	

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
CmpVflCoef %Plt%'HVAC'VlvCtl'CmpVflCoef	AV31	Compensation volume flow coefficient (only relevant for application dynamic control valve) Exponent value ngl for a logarithmic flow curve, e.g. ngl = 3.	Y	-	1	4	3	N
CmpHxCoeff %Plt%'HVAC'VlvCtl'CmpHxCoeff	AV32	Compensation heat exchanger coefficient (only relevant for application dynamic control valve) A-value for if the flow curve should correct a dedicated heat exchanger curve.	Y	-	0.1	1	0.3	N
DiffPPrimPrcv2 %Plt%' DiffPPrimPrcv2	AI58	Process val.2 for differential pressure primary (only relevant for application differential pressure control and with signal type selection for X3 Dp10V(1Mpa-Max)) If, for differential pressure control , a freely configurable pressure sensor is selected with DiffPPrimPrcv2 , the user can define the measuring range of this differential pressure sensor	Y	[kPa]	0	1000	1000	N

Settings for Limitation Functions and Output Control – Dynamic Control Valve, Supply Temperature Control and Heating Circuit

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
TFIPrimDsgn %Pit%'HVAC'VlvCtl'TFIPrimDsgn	AV29	Design primary flow temperature Primary flow temperature which was used for design of the consumer and for the valve sizing.	Y	[°C]	-10	120	55	Y
TRtPrimDsgn %Pit%'HVAC'VlvCtl'TRtPrimDsgn	AV30	Design primary return temperature Primary return temperature which was used for design of the consumer and for the valve sizing.	Y	[°C]	-10	120	40	Y
PwrDsgn %Pit%'HVAC'VlvCtl'PwrDsgn	AV26	Design power Calculated design output = valve fully open at maximum flow and design temperatures reached (product of VfIMax , RFIPrimDsgn and TRtPrimDsgn).	N	[kW]	0	10'000	-	N
PwrMax %Pit%'HVAC'VlvCtl'PwrMax	AV27	Maximum power Absolute limitation value for the output – with this value, a temporary limitation of the output can be set below design values.	Y	[kW]	0	10'000	PwrDsgn	Y
PwrMaxRel %Pit%'HVAC'VlvCtl'PwrMaxRel	AV28	Relative maximum power Relative limitation value for the output. PwrDsgn is 100%. Any value below limits the maximum power below design output.	Y	[%]	0	100	100%	N
EnTRtLm %Pit%'HVAC'VlvCtl'EnTRtLm	BV5	Enable return temperature limitation Switches the return temperature limitation function (SpHTRt/SoCTRt) on and off. <ul style="list-style-type: none"> [1] Active: switched on [2] Inactive: switched off 	Y	-	[1] Active [2] Inactive		[2] Inactive	Y
SpHTRt %Pit%'HVAC'VlvCtl'SpHTRt	AV52	Return temperature setpoint for heating Temperature limitation setpoint to activate the maximum return temperature limitation in heating mode	Y	[°C]	0	100	40	Y
SpCTRt %Pit%'HVAC'VlvCtl'SpCTRt	AV53	Return temperature setpoint for cooling Temperature limitation setpoint to activate the minimum return temperature limitation in cooling mode	Y	[°C]	0	100	12	Y
GainTRtCtr %Pit%'HVAC'VlvCtl'GainTRtCtr	AV62	Return temperature limitation gain Gain for the return temperature limitation controller <ul style="list-style-type: none"> 0 = slow 10 = aggressive 	Y	[W/mK]	0	10	0	N
TnTRtCtr %Pit%'HVAC'VlvCtl'TnTRtCtr	PIV5	Return temperature limitation "Nachstellzeit" Reset time to configure the return temperature limitation controller	Y	[s]	0	600	0	N

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
EnTDiffFIRtLm %Plt%'HVAC'VlvCtl'EnTDiffFIRtLm	BV24	Enable flow/return temperature difference limitation Switch the ΔT limitation function (SpHTRt/SoCTRt) on and off <ul style="list-style-type: none"> [1] Active = switched on [2] Inactive = switched off 	Y	-	[1] Active [2] Inactive		[2] Inactive	N
SpTDiffFIRtLm %Plt%'HVAC'VlvCtl'SpTDiffFIRtLm	AV92	Setpoint flow/return temperature difference limitation ΔT limitation setpoint to activate the maximum return temperature limitation in heating mode	Y	[°C]	0	50	6	N
GainTDiffFIRtCtr %Plt%'HVAC'VlvCtl'GainTDiffFIRtCtr	AV93	Flow/return temperature difference control gain Gain for ΔT limitation controller <ul style="list-style-type: none"> 0 = slow 10 = aggressive 	Y	[W/mK]	0	10	0	N
TnTDiffFIRtCtr %Plt%'HVAC'VlvCtl'TnTDiffFIRtCtr	PIV11	ΔT limitation "Nachstellzeit" Reset time to configure the return temperature limitation controller	Y	[s]	0	600	0	N

Settings for Limitation Functions and Output Control - Differential Pressure Control

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
SpDiffP %Plt%'HVAC'VlvCt!'SpDiffP	AV21	Setpoint for differential pressure control Can be set manually in ABT Go to a fixed value or remotely via BACnet IP	Y	[kPa]	0	1000	40	N

Settings for Backup Mode



Backup Mode is **empty** for applications

- Heating circuit
- Differential pressure control

Objects are only activated when applications

- **Supply temperature control** or
- **Dynamic control valve**

are selected.

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
BckpMod %Plt%HVAC\VlvCtl'BckpMod	MSV42	Backup mode Defines how the device reacts when setpoint is missing, e.g. due to wiring failure on X1	Y	-	[1] None [2] Last setpoint [3] Predefined setpoint		[1] None	N
BckpModDel %Plt%HVAC\VlvCtl' BckpModDel	PIV0	Backup mode activation delay Defines for how long the setpoint can be invalid before the Backup mode is activated. During the delay time, last setpoint is kept.	Y	[s]	0	36'000	900	N
BckpModValPos %Plt%HVAC\VlvCtl' BckpModValPos	AV34	Backup mode value for position The position the device will go to, if: <ul style="list-style-type: none"> • Application is Dynamic control valve; • Control mode is Position control; • Backup mode is Predefined setpoint. 	Y	[%]	0	100	0	N
BckpModValVfl %Plt%HVAC\VlvCtl' BckpModValVfl	AV35	Backup mode value for volume flow The volume flow in relation to the maximum volume flow the device will go to, if: <ul style="list-style-type: none"> • Application is Dynamic control valve; • Control mode is Volume flow control; • Backup mode is Predefined setpoint. 	Y	[%]	0	100	0	N
BckpModValPwr %Plt%HVAC\VlvCtl' BckpModValPwr	AV36	Backup mode value for power The power in relation to the maximum power the device will go to, if: <ul style="list-style-type: none"> • Application is Dynamic control valve; • Control mode is Power control; • Backup mode is Predefined setpoint. 	Y	[%]	0	100	0	N
BckpModValTFI %Plt%HVAC\VlvCtl' BckpModValTFI	AV91	Backup mode value for flow temperature The temperature setpoint the device will control, if: <ul style="list-style-type: none"> • Application is Supply temperature control; • Backup mode is Predefined setpoint. 	-	[°C]	0	120	0	N

Settings for Demonstration Mode



Demonstration Mode can be enabled as long as there is no valid flow sensor signal available.

Object name	Obj. type/ID	Description	Write	Unit	Options		Default	Available in cloud
					Value min.	Value max.		
EnDemoMod %Plt%DemoFnc'tEnDemoMod	BV29	Enable demonstration mode Select whether the Demonstration mode should be activated or not. As long as there is a valid flow signal from the flow sensor, Demonstration mode cannot be activated! The device will not accept the command.	Y	-	[1] No [2] Yes		[1] No	N
NomPpsizeDmo %Plt%DemoFnc'tNomPpsizeDmo	AV84	Nominal pipe size demonstration mode Selection which line size should be simulated for the demonstration. Has an impact on nominal volume flow displayed during demonstration.	Y	[mm]	0	500	25	N
GainDPPrimDmo %Plt%DemoFnc'tGainDPPrimDmo	AV83	Gsin for diff.pressure primary demonstration mode Value for differential pressure during demonstration in relation to Δp_{\min} of the selected line size. Has an impact on the working range for a connected actuator and the self test results: <ul style="list-style-type: none"> • High values: valve operates at low positions; • Low values: valve operates at high positions. 	Y	[%]	0.5	5	1.2	N
TOaDmo %Plt%DemoFnc'tTOaDmo	AV15	Outside temperature for demonstration mode (only shown for application Heating circuit) Demonstration mode can also be used for application Heating circuit with outside temperature compensation – value defines the outside temperature which is used to calculate the flow temperature setpoint based on the heating curve.	Y	[°C]	-50	50	10	N

Configuration with ABT Go or ABT Site in Configuration Mode



These objects representing the configuration are the result of the configuration workflow done with Siemens ABT Go / ABT Site.
Based on the specific configuration, only a subset of these objects will appear in the final configured Intelligent Valve.

Object name	Obj. type/ID	Description	Write	Unit	Options	Default	Available in cloud
PrSpSrc %Pit%HVAC'PrSpSrc	MSV54	<p>Present setpoint source Shows the configured application and setpoint source. Currently selection between</p> <ul style="list-style-type: none"> [1]: Dynamic balancing valve with continuous analog signal on terminal X1; [3]: Dynamic balancing valve with setpoint via BACnet IP (SpRel); [4]: Heating circuit control with local setpoint according to heating curve based on measured outside temperature; [5]: Supply temperature control with setpoint according to analog signal on terminal X1; [7]: Supply temperature control with setpoint via BACnet IP; [8]: differential pressure control with setpoint via BACnet IP. 	N	-	[1] Relative setpoint terminal [2] <i>Relative setpoint Modbus</i> [3] Relative setpoint remote [4] Heat circuit outside temp. comp. [5] Flow temp. setpoint terminal [6] <i>Flow temp. setpoint Modbus</i> [7] Flow temp. setpoint remote [8] Diff.pressure setpoint remote	[1] Relative setpoint terminal	N
PrX1Sel %Pit%HVAC'PrX1Sel	MSV59	<p>Present selection for X1 Shows which setpoint is related to the analog to the analog value at terminal X1 – automatically selected according to setpoint source selection represented by PrSpSrc.</p>	N	-	[1] <i>None</i> [2] Relative setpoint terminal [3] <i>Flow temperature setpoint</i> [7] <i>Outside air temperature</i>	[2] Relative setpoint terminal	N
PrX1SelSigtyp %Pit%'PrX1SelSigtyp	MSV81	<p>Present signal type selection for X1 Shows the signal type selected for terminal X1, provided:</p> <ul style="list-style-type: none"> PrSpSrc is set to [1] or [5] → PrX1SelSigtyp = [2], [3] or [4]; or PrSpSrc is set to [4] → PrX1SelSigtyp = [5], [6] or [8]. 	N	-	[1] None [2] 0...10 V [3] 2...10 V [4] 4...20 mA [5] Ni1000 (DIN) [6] LG-Ni1000 [8] Pt1000 (EU)	[2] 0...10 V	N

Object name	Obj. type/ID	Description	Write	Unit	Options	Default	Available in cloud
PrX2Sel %Plt%'HVAC'PrX2Sel	MSV60	Present selection for X2 Shows which process value is represented at terminal X2.	N	-	[1] Disabled [4] Primary flow temperature [5] Primary return temperature [8] Temp. difference flow and return [10] relative volume flow [11] Valve position [12] Relative power	[1] None	N
PrX2SelSigtyp %Plt%'PrX2SelSigtyp	MSV82	Present signal type selection for X2 Shows the signal type selected for terminal X2, provided PrX2Sel is not set to [1]	N	-	[1] Disabled [2] 0...10 V [3] 2...10 V [4] 4...20 mA	[1] None	N
PrX3Sel %Plt%'HVAC'PrX3Sel	MSV61	Present selection for X3 Shows which process value is measured at terminal X3. Automatically selected according to setpoint source selection PrSpSrc .	N	-	[1] Disabled [4] Flow temperature [5] Differential pressure primary	-	N
PrX3SelSigtyp %Plt%'PrX3SelSigtyp	MSV83 (Dp control) ----- MSV84 (Heating circuit) ----- MSV85 (Supply temp. control)	Present signal type selection for X3 Shows the signal type selected for terminal X3, provided: <ul style="list-style-type: none"> • PrSpSrc is set to [4], [5], [6] or [7] → passive temp. sensor [5], [6] or [8] expected; or • PrSpSrc is set to [8] → active differential pressure sensor [1], [2], [3] or [4] expected. 	N	-	[5] Ni1000 (DIN) [6] LG-Ni1000 [8] Pt1000 (EU) [1] QBE3000-D1.6 [2] QBE3000-D2.5 [3] QBE3000-D4 [4] Freely adjustable span of pressure measurement	-	N

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